

ABSTRACT OF THE DISCLOSURE

A reliable hydrodynamic bearing having high rotational accuracy is offered. The hydrodynamic bearing for a small-sized motor is made of a special nonmagnetic steel material that is excellent in terms of machinability, wear resistance, and corrosion resistance. This special steel material contains 14.00% Cr, 8.00% Mn, 0.20% C, 2.00% Ni, 0.35% Si, and less than 0.05% P. This special steel material has high machinability and so machining accuracies such as surface roughness and squareness can be enhanced. Consequently, the rotational accuracy of the hydrodynamic bearing can be enhanced. This special steel material also has such a property that when pressure is applied to plastically deform it, the pressed surface hardens. Using this nature, the surfaces at which rotating and stationary parts of the bearing contact with each other are pressed. Thus, the surfaces are hardened. Hence, the wear resistance is improved.